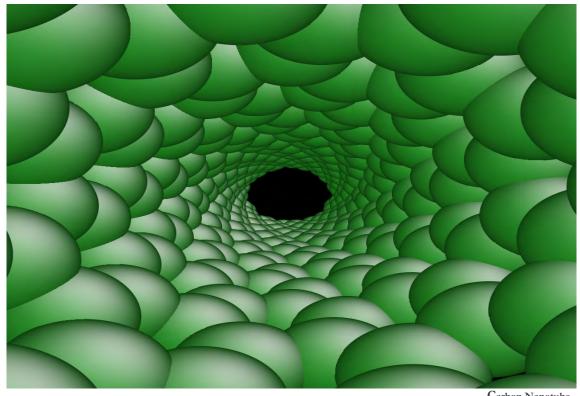
# Annual Report 2005



Carbon Nanotube

Missouri Technology Corporation

# Missouri Technology Corporation Annual Report

2005

Prepared for:

The Honorable Matt Blunt, Governor

The Honorable Rod Jetton, Speaker Missouri House of Representatives

The Honorable Mike Gibbons, President Pro Tem Missouri Senate

> Missouri Technology Corporation Jefferson City, Missouri

> > November 1, 2005



Matt Blunt Governor Frank Stokes Chair

November 1, 2005

The Honorable Matt Blunt Office of the Governor Room 216, State Capitol Jefferson City, Missouri 65101

The Honorable Rod Jetton, Speaker Missouri House of Representatives State Capitol Jefferson City, Missouri 65101

The Honorable Mike Gibbons President Pro Tem Missouri Senate State Capitol Jefferson City, Missouri 65101

Dear Governor Blunt, Speaker Jetton and President Pro Tem Gibbons:

As required by state law in section 348.256 (6) RSMo, we are hereby submitting the Missouri Technology Corporation's 2005 Annual Report. The Missouri Technology Corporation's Board of Directors approved the report at its meeting held on October 28, 2005, after inviting the public to comment on the organization's role in the development and deployment of new technologies in Missouri. We believe the report is a fair and accurate description of the structure, operations and financial status of the MTC.

Please contact us should you require more information about the Missouri Technology Corporation or its role in helping Missouri's economy prosper through the better development and use of technologies.

Very truly yours,

Frank Stokes Chair

c: MTC Board of Directors

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#### 2. INTRODUCTION

This 2005 Annual Report of the Missouri Technology Corporation (MTC) is written in response to the legal mandate contained in Section 348.256(6) RSMo., which states:

"The corporation shall submit an annual report to the governor and to the Missouri general assembly. The report shall be due on the first day of November for each year and shall include detailed information on the structure, operation and financial status of the corporation. The corporation shall conduct an annual public hearing to receive comments from interested parties regarding the report, and notice of the hearing shall be given at least fourteen days prior to the hearing."

In order to comply with the law, the MTC conducted an annual public hearing on October 28, 2005 during its regular Board meeting in order to receive comments from interested parties regarding the work of the organization. This report is due to be completed and submitted to the Governor, the Senate President Pro Tem and the Speaker of the House on November 1, 2005.

The past year has been a time of change, challenge and advancement for the MTC. In some previous years, the MTC served in a valuable, yet somewhat limited role of providing counsel and guidance to the Missouri Department of Economic Development (DED) and other state agencies on the implementation of technology-related programs and on the development of new state policy. To be certain, the MTC has been responsible for a set of notable technology initiatives over the years that are detailed in this report but a majority of the MTC's efforts have rightly been aimed at helping set the direction of the state's efforts related to technology and innovation. However, we are understandably proud that the members of MTC—representing universities, businesses, local and state government and economic development organizations—have been able to offer input to DED and other policymakers that we trust will help shape the state's investments and policies toward research, development, technology transfer and commercialization in the year ahead.

With the assistance of DED and the General Assembly in FY 2005, the MTC established its capacity to play a more active role in fulfilling its mission. In past years, the MTC commenced several worthwhile technology-related projects, such as the UM Technology Park at Fort Leonard Wood, but it was able to pursue these projects largely because of the designation of staff and resources in DED to assist with the projects and through partnerships with other organizations. While there is a steady commitment on the part of the MTC to continue its strategic partnerships and to work closely with DED, there is also a realization that the MTC needs to seek new capacities to improve the technology assets of Missouri. With the establishment of its 2005 strategic plan, "New Technology Directions for Missouri" and the receipt of financial assistance from the state for FY 2005, the MTC board of directors identified new priority goals for the organization and charted a course of action to increase its accomplishments going forward.

In recognition of the importance of elevating the successes of the MTC, the General Assembly invested state funding in the operations of the MTC and its subsidiary, the Research Alliance of Missouri, for Fiscal Years 2004 and 2005. Early 2004 brought the opportunity to hire an executive director, a part time staff and to establish an office outside of state government, all of which were first time events in the 10-year history of the MTC. Even though that funding was not continued by the state for FY 2006, the MTC began the new fiscal year with high expectations about finding new sources of income that will allow it to continue its mission.

With the downsizing of DED's staff and funding for technology-based economic development programs and services over the past several years, we believe it is increasingly important for the MTC and RAM to provide timely assistance to DED through services designed to add value to the state's economic development efforts. Through cooperative agreements with DED in FY 2004 and FY 2005, the MTC assumed the responsibility for providing technology-related guidance to DED and for providing meaningful coordination of technology-related projects. One meaningful example of MTC's work as a partner to DED is the on-going coordination of the Research Alliance of Missouri (RAM), which has become a successful coalition of Missouri universities and private research institutions. RAM is promoting more research, development, technology commercialization, and university collaboration in an effort to boost Missouri's economy.

Through its RAM partner and subsidiary, the MTC is responsible to the people of Missouri for increasing the value and significance of research being performed at Missouri universities and to improve relationships between our universities and businesses. The members of RAM have made significant progress in the past year in coordinating the efforts of the member universities around these goals. In last 2004, RAM published its first strategic plan and is continuing to pursue a set of ambitious goals. MTC has provided staff and administrative support for RAM, but the RAM member institutions are also actively engaged in supporting the work of the organization.

In addition to complying with state law, this report is intended as a public update on progress the MTC is achieving in implementing its 2005 Strategic Plan, "New Technology Directions for Missouri", which was published in late 2004.

Since the MTC adopted and produced its Strategic Plan, the Board, its partners and staff have been proceeding to implement several of the actions called for in the plan. The plan calls for the MTC to concentrate on four overarching goals that the Corporation believes are both needed and can be accomplished. Those goals are:

- increase the level of knowledge among policy makers and citizens about the role of technology and innovation in promoting economic growth;
- 2) develop additional sources of sustainable funding for technology initiatives;
- 3) develop and maintain easily accessible information about Missouri's technology assets, including researchers, research projects, intellectual property and funding sources; and

4) increase the amount of company creation and growth based on the transfer of technologies.

While the organization and its partners have made good progress on several of the strategies to achieve MTC's goals, much work is yet to be done. In order to increase the chances that we can achieve measurable success during the remainder of 2005 and beyond, the MTC chose to place differing priorities on the strategies, depending on the likelihood the strategies can be accomplished given the capacity of the MTC, and the potential impact on the state.

One strategy that the MTC Board believes will particularly help increase the knowledge among policy makers and Missourians about the role of technology in economic development is the construction of an independent report card on where Missouri stands in comparison with other states in key measures that describe the state's potential for creating new jobs, companies and economic growth in business sectors that might be called a part of the "new economy". This innovation potential is most important among enterprises that require ready access to new ideas that emanate from or are developed by our universities; a pool of highly skilled and trained workers in areas critical to the growth industries; adequate amounts of risk capital for early stage companies; and a financial and service infrastructure that supports entrepreneurial development.

In order to establish this independent report card, the MTC procured the services of the Economic Policy Analysis and Research Center (EPARC) at the University of Missouri-Columbia. In response to a competitive RFP, EPAC produced the first, "Show-Me Missouri Innovation Index", which measures Missouri's comparative performance in research, technology development, educational achievement, innovation and other indicators important to innovative businesses. The draft report was delivered to the MTC Board in the summer of 2005 and the Board is currently considering how the report will be released.

In order to accomplish the goal of developing additional sources of sustainable funding for technology initiatives, the MTC worked with the RAM to produce a standard research agreement that will allow RAM institutions to more quickly and easily participate certain kinds of research projects. In particular, the agreement will help bypass the legal barriers often experienced by universities when pursuing multi-institutional research collaboratives and when commencing applied research projects with Missouri businesses. In the past, the separate legal counsels of each university involved in joint research projects often disagreed on contract wording or the time required to write joints agreement was too long in order to apply for research funding or work with businesses. The impact of this agreement will be to increase the chances that new research funding can be secured for Missouri universities through closer and more effective collaborative efforts.

# **MTC's Progress Report**

Even in advance of the establishment of its strategic plan in late 2004, the organization began working diligently to achieve its priority goals. The members of MTC, as well as

RAM members, have continued to work and serve over the past year with no compensation for their travel expenses and for the substantial amount of time they spend supporting greater research, development, technology transfer and commercialization.

Before 2004, the Missouri Technology Corporation Board and its efforts were supported by staff from the Department of Economic Development and its Division of Business Development. DED, in partnership with the MTC, showed significant results in organizing industry groups through state-wide "roundtables", by connecting Missouri businesses with needed technologies on a case by case basis, and in assisting entrepreneurs through financing based on tax credits. In 2002 and 2003, however, huge DED staffing cuts forced the Department to drastically reduce its level of commitment and staff support for technology-based development. In response, the members of MTC, the General Assembly and DED worked in concert to secure an appropriation for FY 2005 to support a minimal level of operations for the MTC and its subsidiary, the Research Alliance of Missouri.

In return for the state's investments, the MTC pursued an aggressive agenda of work during 2004 and 2005. To further the accomplishment of its statutory mission and strategic plan, the MTC Board made the following decisions and successfully accomplished the related actions:

- MTC developed and published the 2005 Strategic Plan, "New Technology Directions for Missouri"—the first in the organization's history
- Assisted RAM in the development and publishing of RAM's 2005 Strategic Plan, the first in the organization's history
- Constructed and operated MTC's and RAM's first websites, MissouriTechnology.com and ResearchMissouri.org
- Entered into a financing agreement with the University of Missouri to construct a 2<sup>nd</sup> building at the University of Missouri Technology Park at Fort Leonard Wood. With the completion of Building #2, both buildings are at full capacity and consideration is being given to the financing and construction of additional buildings
- Helped initiate the Leonard Wood Institute, a collaborative at Ft. Leonard Wood to serve as a connection between Missouri research institutions, businesses, governments and the U.S. Army at Fort Leonard Wood
- In partnership with RAM, established Missouri's first Collaborative Research
  Agreement document among the state's universities to enable more research
  funding and projects, and quicker applied research services for Missouri businesses
- Established a fundraising mechanism to seek federal, private and other non-state funding over the next year, including the receipt of competitive grants on behalf of member institutions

 Completed an analysis of the Battelle Life Sciences report and established which recommended actions had been achieved and which had not. This will be used as a guide to policymakers during the coming year

- Contracted for and received the "Show-Me Missouri Innovation Index" that may be used by policymakers to gauge Missouri's economic competitiveness with other states, based on measures of Missouri's progress in technology, educational attainment, and research
- Updated Missouri's only comprehensive research database and made this "Research Matrix" available to businesses and the public on the RAM website
- In partnership with RAM universities, began the process of developing an econometric model that will estimate a value to Missouri's economy from research projects and spending
- Developed standardized reporting guidelines for Missouri's Innovation Centers and published qualification criteria for new applicants for Innovation Center status
- Worked with potential Innovation Center candidates on strengthening their plans for providing service, particularly in underserved areas of the state and named two new Centers, in Kansas City and Joplin
- Developed brochures and other materials outlining Missouri research resources that can help with the attraction of businesses and talent in the state. The materials were sent to local chambers and economic development organizations
- Moved into a new MTC/RAM office that is more business-like and which provides a dedicated meeting area for RAM, MTC and other gatherings
- Underwent a state audit that examined five years of MTC operations. An audit report is pending which makes only minor recommendations regarding the MTC/RAM enterprise
- During 2005, supported 5 meetings of the full MTC Board, 8 meetings of the full RAM Board, and held numerous committee and focus group meetings

In addition to the opportunity to provide an annual update on the status, activities and achievements of the MTC and RAM, this report is also an opportunity for the MTC to underscore the importance for our state to continually reexamine its current approaches to economic development and to adopt a set of strategies that will give the private sector in Missouri a greater capacity for new enterprises to adapt and prosper in the face of continuing global economic and technological changes.

# **Defining and Promoting the Critical Role of Technology in Economic Development**

Technology can be thought of as the knowledge and know-how necessary to create defined products, processes, and services. In the 21<sup>st</sup> century, it is apparent that wealth and jobs are increasingly being created by the innovations that stem from those new technologies.

The National Science Foundation defines innovation as "the process of making practical use of an invention (or technology) to produce new goods or services, to improve existing goods or services, or to improve the way in which they are produced or distributed in order to gain a competitive advantage, or social benefit". Innovations, which are the products of technology, are seen by many economists as the defining factors in increasing worker and company productivity, which often determines whether businesses can compete successfully and jobs can be created.

While making the connection between technology and the creation and retention of jobs seems apparent in today's global economy, it is not always an easy concept for those who are more accustomed to more traditional economic development practices. Largely because of the longer time needed for benefits to become apparent, it is more difficult to build a state economic development strategy based on science, technology and innovation.

In the past, our economic development programs were designed primarily to attract companies that promised to create or retain jobs, irrespective of whether those industries had long-term prospects for benefiting our state. While we believe efforts to create and retain jobs through incentives may continue to be necessary, it is not sufficient. The factors that drive the economies of states today are very different from the drivers of the past. In the past, factors such as physical assets, raw materials, proximity to transportation modes, and access to labor largely determined economic success. Today, those states that are able to expand knowledge assets and leverage them for economic development are showing much of our nation's growth of jobs and new wealth.

Missouri's economy, like that of our nation, continues to be in a transition. As jobs in some traditional businesses, like heavy manufacturing and the production of consumer products, decline, new opportunities for job creation based on our science and technology assets should be identified and aggressively pursued.

We believe an important way to bolster and strengthen Missouri's economy is to concentrate on efforts that will help ensure the development of new companies, products and jobs based on higher levels of technological advancement, cutting edge processes, and a more capable, productive workforce.

Many states across America have adopted these ideas and have created economic development strategies based on them. As we have discovered through the "Show Me Missouri Innovation Index", those states that have effectively carried out these strategies tend to be more economically vibrant: business productivity is greater and the growth of personal income tends to be higher. As we have observed in various reports, the most effective technology-based economic development strategies across the country are those focused on:

- Seeking better ways to commercialize innovations coming out of universities and businesses
- Improving the quality and timeliness of deliver for entrepreneurial assistance
- Increasing access to risk capital at various stages of company development
- Removing roadblocks to companies receiving timely applied research assistance from universities
- Increasing funding for basic research in disciplines tied to economic potential
- Raising the level of higher education attainment among the workforce
- Finding effective and accepted ways of measuring the effectiveness of public-private investments that encourage technology-based development.

Members of the MTC know that while Missouri has many technology assets, so do other states and regions of the world – and many of them have continued to invest heavily in improving their assets. We see evidence that those places that embrace technology development as an economic development strategy tend to have better economies. Since we are in an economic competition, the MTC is committed to using its unique position to call attention to the importance of raising our state's level prowess in technology. We believe that the degree to which our state adopts and implements the foregoing strategies will directly impact the strength of our economy, the availability of good jobs and the wealth of our citizens.

Based on what we have learned, we believe Missouri should increase its pace toward innovation and should commit more of its resources and attention to the issue. In particular, we believe policymakers should consider the adoption of a set of economic development programs aimed specifically at technology-based development.

While Missouri's economy and institutions are rich and varied, we believe our state is not keeping up with economic competition, particularly from those states that are seen as technology leaders. As we discovered from the "Show Me Missouri Innovation Index", Missouri's capacity to create jobs and economic growth by virtue of our technology assets compares well with our neighbors in the Midwest. The "Index" compares Missouri's rankings with three groups of states in measures of higher education, research and development and patenting. One of those sets, which is comprised of most of Missouri's neighbors, shows our state is performing modestly well, and is either 1<sup>st</sup> or 2<sup>nd</sup> in these comparisons. However, when Missouri is compared against a set of economic competitor states and what were termed, "leading technology states", we were not even in the same league.

Most importantly, however, the report shows that the condition of the economies in all 18 states compared shows a positive correlation between economic performance and measures of technology attainment. As the report observes:

"Missouri's leaders face the challenges associated with facilitating and managing economic development. In the face of rapid technological progress, no state wants to be lapped in the race to raise living standards. It is important to recognize that technological progress does not just materialize. Rather, it is the culmination of a process. There are ingredients that are mixed together, producing new ideas, new products, and new methods which raise the state's income per capita. In short, technological progress means better jobs and, as the total economic pie gets larger, more jobs. The evidence.....suggests that Missouri risks falling even further behind high-productivity states. Missouri's relative position among Competitor states and Leading Technology states slipped between 1995 and 2002. While the Competitor states appear to be catching up to the Leading Technology states on the measures in the Show-Me Missouri Innovation Index, Missouri lost ground to both groups of states."

One additional feature of the "Show Me Missouri Innovation Index" is an examination of the technology "clusters" where Missouri is thought to have either the most strength or where future opportunities for success exist: the plant and life sciences, information technology, and advanced manufacturing. While the economists who authored the "Index" showed that the most significant increases in state productivity occur where there is a strong, general commitment to higher education, a large amount of R&D spending and a greater degree of patenting, we believe that targeted economic development efforts in the three key industry sectors remain a valuable effort. This is particularly true in the plant and life sciences where Missouri is a clear regional leader with a tremendous amount of growth potential. The MTC does not believe Missouri should adopt an "industrial policy" where it seeks to pick winners and losers in the marketplace. Rather, it believes Missouri should invest its time, talent, and resources in such a way as to create the best environment possible for proven clusters of technology-driven industries to prosper.

Understanding how best to achieve economic opportunities for citizens and create new wealth has evolved. We believe it is now clear that simply working hard to attract and retain businesses is not enough. What's succeeded elsewhere, and will succeed in Missouri, is paying attention to the continuum of activities needed for technology-driven wealth creation. That continuum includes developing a strong research base, rapidly commercializing inventions, assisting entrepreneurs, and building a world-class innovation infrastructure.

# MTC's Continuing Role in Developing the Fruits of Technology

Created by an act of the General Assembly in 1994, the Missouri Technology Corporation (MTC) exists as a private, not-for-profit organization led by a 15 member Board of Directors, 11 of whom are appointed by the governor to serve four-year terms. The Board is composed of leaders from businesses, science and technology organizations, Missouri's universities, local government, and chambers of commerce. The President of the University of Missouri System, a member of the House of Representatives, a member of the Senate, and the Director of the Department of Economic Development also serve as ex-officio members. The House of Representatives membership position is currently vacant as are two of the positions subject to the Governor's appointment.

Missouri law charges the MTC with the unique role of being the state's science and technology advocate. In order to carry out this role, the MTC was granted significant authority to "promote the modernization of Missouri businesses...and contribute to the strengthening of the economy of the State of Missouri through...technology application, technology commercialization and technology development."

The MTC was created to be a leader in statewide efforts to create jobs and economic growth by improving technology connections between universities and businesses; increasing investment in public and private research; and improving methods for transferring and commercializing new discoveries. Our role is to help maximize the creative potential of Missouri's private and public institutions and thereby help secure a strong economic future for all our citizens.

In fulfilling its role, the MTC has researched technology-related issues, reports on opportunities for technology based economic development, provided advice to the Governor, the General Assembly and the Department of Economic Development (DED) on the formation of new policy, and initiated and managed several technology-related projects.

The MTC has played active leadership roles in the establishment of the Research Alliance of Missouri (RAM), the Missouri Mathematics Academy, the University of Missouri Technology Park at Fort Leonard Wood and acted on behalf of the state in the retention and enhancement of the U.S. Army's Fort Leonard Wood during the 1995 and 2005 Base Realignment and Closure (BRAC) proceedings. And the MTC has fulfilled its legal mandate to provide oversight for the state's Innovation Centers, which continue to play an indispensable role in efforts to transfer, incubate and apply new technologies. A more detailed record of our achievements is included in this report.

The MTC has worked to maximize the benefits of technology by building private/public partnerships that will bring about new public policy to meet Missouri's current and future needs. Our organization works with and through partners across Missouri. We are committed to building networks and collaborations that connect our state's individual resources so we become a stronger magnet to attract from across the country the ideas, people and funds that can help us remain competitive and flourish.

Even though the MTC Board has met regularly since January 1995, it had not adopted set of strategic goals apart from those of DED. In 2005, the MTC continued its partnership with DED, but it also looked for new ways to foster additional partnerships. Through the adoption of its strategic plan in late 2004, the MTC firmly established its determination to operate in a manner that will compliment and enhance the state administration's ability, and that of our other economic development partners, to ensure long-term growth and prosperity in Missouri communities in all areas of the state.

In advocating for a greater state focus on technology, it is the intent of the MTC to supply a long-term, results-oriented vision and plans that can be used by policy-makers to guide state efforts to modernize the economy and give businesses the advantages they need to compete in the global marketplace. The Show Me Missouri Innovation Index is one installment on the MTC's commitment to assisting policymakers.

Above all, the Missouri Technology Corporation (MTC) exists to help create wealth for the citizens of our state and improve their quality of life. It is clear that the creation of wealth for individuals and enterprises alike increasingly depends on science and technology.

We are proud of our accomplishments in the past year. However, we believe that if the MTC is to fulfill its leadership role in science and technology, we must challenge state leaders to join in a more aggressive effort to raise Missouri's success in areas that are key to our economic competitiveness.

### The Research Alliance of Missouri

One of the best accomplishments of the last year, is the successful and continuing work of RAM. The MTC is proud of its role on behalf of the state in helping to formalize RAM's operations and structure; ensure that DED and MTC representatives were an integral part of RAM's leadership; encourage RAM to establish and continue formal relationships with MTC and DED via its strategic plan; and foster collaboration among state partners.

The Missouri Technology Corporation takes very seriously its responsibility of being the state's technology advocate. In that statutorily assigned role, the members believe that it is one of the responsibilities of the MTC to see to it that there is an effective state-wide organization in place to better coordinate the research at Missouri's many research universities and to provide an organized and fruitful way for the private sector to link up with that research. We believe RAM is that organization. It has made a substantial amount of progress in the past year toward becoming an effective organization and it is aggressively pursuing its goals.

For its part, the MTC views itself as being the entity that is charged with pursuing a broad range of possible strategies that will bring about a stronger, more competitive economy based on the discovery, development and deployment of new technologies. The MTC Board feels it is imperative that public and private organizations in Missouri make a new commitment to modernizing Missouri's economy by helping to create an environment in which new discoveries will occur, new companies will be formed based on those discoveries, and existing companies will be strengthened by the application of new knowledge. In advocating for the greater development and deployment of technologies, the MTC intends to supply a long-term, results-oriented vision and plans that can be used by policy-makers to guide state efforts to modernize the economy and give businesses the advantages they need to compete in the global marketplace. In order to develop and share this vision and plans, the MTC is committed to fostering enduring private/public partnerships, like RAM, that will help bring about changes in public policy to meet Missouri's current and future economic needs.

The RAM views itself, and is viewed by the MTC, as being an action-oriented organization that does not intend to make public policy. During the past year, RAM moved toward becoming an organization that serves to facilitate its member universities in collaborative research projects, especially in the pursuit of adequate funding for that research. The RAM is also dedicated to being a facilitator and, at some point in the future, the administrator for applied research projects, especially for those performed by member universities for Missouri companies.

Finally, the RAM has made good progress in formalizing its existence and memorializing its relationship with the state government and with the Missouri Technology Corporation. It has developed its first Strategic Plan in the past year and it is making good progress in achieving the goals set forth in that plan.

### **History and Purpose for RAM**

The effort to found RAM was begun by DED and the MTC in response to a request from Governor Bob Holden in 2003. In fact, Governor Holden called for the formation in RAM in his "State of the State Address" to the Missouri General Assembly on January 15, 2003. In the words of Governor Holden, "The Research Alliance presents its members with a unique networking opportunity that will allow them to pool their resources, exchange research ideas and turn this research into commercial opportunities. Members of the alliance will be able to see what others are doing in research. In some cases, perhaps one university's project is similar to another's work. The alliance will allow its members the opportunity to determine which research projects are complementary, and how resources can be combined for the best result. The alliance will also allow businesses to communicate what their workforce needs are, and how university research may best serve them."

In response to Governor Holden's call, the Department and the MTC arranged for the founding members of RAM to hold their first meeting on the same day as the Governor's address. The MTC considers the RAM to be its strategic partner in an effort to focus on the practical benefits that can be achieved by researchers from all of Missouri's research universities working closely together. In fulfilling its broad legislative charge to

maximize the level of innovation occurring in Missouri businesses and institutions, the MTC considers its stewardship of RAM as an important way to maximize opportunities for collaborative research.

For the past year, RAM has been guided by members initially invited by Governor Holden to represent the state's universities and other major research organizations. RAM is staffed by the executive director of the MTC who assists with the furtherance of RAM's Mission and Goals.

The RAM is constituted as a non-incorporated team of the chief research officers of each of Missouri's colleges and universities and non-profit research institutions that have at least \$10 million in research expenditures on an annual basis. The RAM meets on a monthly basis in Jefferson City and is the sponsor of several research projects that are being done to benefit Missouri businesses. Finally, the RAM and the MTC have developed an agreement that will guide the relationship between the two organizations. In general, the MTC has agreed to act in the role of the legal entity responsible for the operations of RAM, including the receipt and expenditure of funds from all sources and the provision of staff.

RAM's strategic Plan, adopted in late 2004, established a set of priority goals that would not only apply to its work in the coming year, but would guide its work through the foreseeable future. The priority goals adopted were the following:

- 1. Create high-tech jobs for Missourians by increasing the speed of moving technological discoveries into commercialization;
- 2. Bring significantly more federal and private research dollars into Missouri, including competitive grants that participating RAM institutions can pursue as a team;
- 3. Improve the state's ability to participate in new federal initiatives that will strengthen our research base and provide funding to put Missouri on the cutting edge of emerging economic opportunities;
- 4. Establish a new culture within institutions of higher learning that values tech transfer and entrepreneurship;
- 5. Build new research and development relationships with industry that translate discovery into commercialization;
- 6. Identify strategic directions that Missouri must pursue to remain economically viable for the future; and
- Identify research collaborations that accelerate faculty development and the education of undergraduates and master-level students, which will lead to continued graduation of future Missouri entrepreneurs, researchers, and skilled workers.

During the past year, RAM has concentrated on achieving its goals using the following process approaches:

• Research – By facilitating cutting edge research, by fostering collaborative research initiatives in universities throughout the state, building a stronger university and non-profit research infrastructure, and by fostering collaborative research and development projects between universities and Missouri businesses;

- Technology Transfer By streamlining the process of technology transfer from inventions in university laboratories to commercial products, which will contribute to the development of the knowledge based economy and improved conditions for the labor market; and
- Addressing Industry Needs By assisting Missouri businesses in addressing technological problems through collaborative projects with universities.

### Work on behalf of DED to Aid the Development and Operations of RAM

In its FY 2005 agreement with DED, the MTC was requested to perform various tasks to make certain RAM could be a successful organization. In the following four areas, we believe the MTC has met or exceeded the reasonable expectations of DED with regard to RAM 's successful operations during the past year:

1. Take reasonable steps to help formalize RAM's existence and structure

With the expert assistance of Bill Bott of the Missouri Results Initiative Office, the RAM engaged in an accelerated process to develop a Strategic Plan that solidifies its structure and identifies concrete goals for it to achieve.

The RAM chose to continue its existence as a formal part of the MTC for purposes of administration, financing and statutory authority. It has chosen, however, to pursue an activist agenda of research collaboration and technology project management as an informal organization. That informal structure is being memorialized in its Strategic Plan, which also further defines RAM's relationship with the MTC and DED.

2. Ensure that DED and MTC are Represented on the Governing Board of any Such Formalized Structure

As is evidenced in the expanded Mission Statement, the DED Director or his representative is considered an ex-officio member of RAM and is a voting member of the Executive Committee. The Missouri Technology Corporation Chair and the Executive Director are also ex-officio members of RAM and voting members of the Executive Committee.

3. Cause RAM to Enter into a Formal Relationship with DED and MTC, Via a Contractual Relationship or a Memorandum of Understanding

As is evidenced in the Strategic Plan, RAM formally recognized the role of the MTC in providing administrative, funding and other non-policy oversight and assistance to RAM. The RAM members feel strongly that the neither MTC nor DED should dictate the actions of RAM in building research collaboratives among member universities and in providing applied technology assistance to Missouri companies. However, the RAM members have

also memorialized their intent to work closely and coordinate with the MTC, the RAM and other state, local and federal organizations in achieving its goals.

4. Encourage RAM, in its Activities, to Cooperate with DED

While it is important to note that RAM's Strategic Plan calls upon the organization to cooperate closely with DED, it is even more important to understand that the RAM members are vitally committed to a positive, nurturing relationship with DED. It is also a priority of RAM to make certain that a collaborative relationship exists not only among its member institutions, but also with the state government that helped RAM to form. We hope the spirit of cooperation between DED and RAM will grow in the future as the need for increased research funding and expanded technology consulting accelerates.

# MTC's Accomplishments: A Commitment to Action and Results

Over the past year, the MTC has been the fortunate beneficiary of support from DED. Even though no appropriation was made by the state for supporting the MTC or RAM in 2006, we are hopeful DED will be able to close the projected financial gap that is likely to occur in March 2006 by using funds from another source. Several productive conversations have been held with the leaders of DED, who seem supportive of ensuring that the MTC and RAM will be able to continue to operate.

Even though more than half of 2005 remains, the MTC has been able to accomplish a significant number of its priority strategies. The following is a listing of those strategies and the status of each. A fuller explanation of the goals, strategies and detailed actions of the organization is contained in Appendix C.

### **Priority Strategies**

1. Construct and continually update a "Missouri Show-me Innovation Index" to measure Missouri's annual achievements in research, technology development, educational achievement and innovation

Status: Complete. Could be released to the public in the near future.

2. Publish a new "Missouri Technology Plan" that can serve as a guide for policymakers in the formation of new technology policies that can stimulate Missouri's key industries.

Status: In process. A draft RFP was constructed and project could begin when and if funds are identified

3. Inform key members of the General Assembly, legislative staff and the Governor's administration about MTC's goals, methods, and achievements

Status: On-going. Substantial outreach to the legislature and Blunt Administration in 2005 was made in early 2005, but political and funding uncertainties continue to exist.

4. Designate a state "Science and Technology Advisor" to work with the Governor and General Assembly

Status: Request sent to Governor and DED. Awaiting a decision by the administration

5. In partnership with the Research Alliance of Missouri (RAM), enable and broker collaborative research agreements and projects that better connect research institutions and businesses and increase the likelihood for external funding

Status: Accomplished. A first of its kind, collaborative research agreement accepted by RAM members and published. Several collaborative projects are in process.

6. Assist in building new, technology-based economic development partnerships around Missouri's key industry clusters

Status: Not yet accomplished. Lack of time and resources and uncertain support by DED are issues yet to be resolved

7. Seek direct or indirect funding from the federal government, foundations and private businesses that will allow the MTC to play a sustained role in technology development, transfer and commercialization

Status: Not yet accomplished. Outreach to the Kauffman Foundation, as an example, has not yet produced funding. RAM may develop grant applications to the federal government on behalf of the universities. RAM members have also chosen to "self invest" to gather needed funding. To date, RAM members have invested \$31,000 in RAM's continuing operations.

8. Create a web-accessible research database that includes researchers, research projects and intellectual property in fields of discovery related to Missouri's targeted industries

Status: Accomplished. RAM's website, <a href="www.ResearchMissouri.org">www.ResearchMissouri.org</a>, contains a research matrix of researchers and research projects, as well as contact information. It is in need of refinement and additional data in order for the matrix to be useful, however.

9. Partner with the University of Missouri and the State SBIR/STTR Assistance Centers to complete and deploy the I3 (Innovation Information Infrastructure) system, which will provide a way for universities and businesses to communicate more easily and effectively on technology issues

Status: Not yet accomplished. Limited contact with the MoFAST Program and there is uncertainty at the University of Missouri regarding the Program's future.

10. Develop new opportunities to expand the UM Tech Park at FLW and build on partnerships among businesses, universities and local/state government that produce more opportunities for research, technology transfer, and company creation in the region

Status: Accomplished and on-going. Building #2 at the UM Tech Park was financed, constructed and placed in service in 2005. That building is currently 100% occupied as is building #1. There is an ongoing effort to arrange financing for the next building(s) as a result of significant and proven demand for space.

Through the Leonard Wood Institute, UMR and the FLW RCGA, efforts continue to produce more opportunities for collaboration to produce jobs. MTC's efforts related to BRAC 2005 helped keep FLW off the base closure list, but did not produce new commands for the facility, as had been the goal. However, as many as 2,000 new Army personnel and equipment will be coming to the base as a result of BRAC-related realignments in force.

11. Devise a Missouri Technology Commercialization plan that includes model intellectual property and technology licensing policies that can be utilized by Missouri's universities and entrepreneurs

Status: Not commenced. Waiting on opportunities for funding.

12. Provide advocacy, support and funding for a "Phase Zero" grant program that assists entrepreneurs who are trying to get SBIR or STTR proposals submitted to the federal government

Status: Not accomplished. The program is also a recommendation of the Venture Capital Roundtable, but funding is not available.

13. Develop a more robust set of criteria for evaluating new innovation center proposals and for measuring the success of existing innovation centers

Status: Accomplished. The MTC adopted, and DED approved of, a new set of criteria for evaluating existing center performance and applications for new center designation. The criteria were used to evaluate new center proposals from Joplin and Kansas City, both of which were subsequently designated as Innovation Centers. Annual reports from all the existing centers have been received and evaluated.

14. Ensure adequate and coordinated funding for the Innovation Center Network

Status: Partially accomplished. MTC advocated in favor of state funding for existing centers and one new center. Additional appropriations were made in the FY 2006 budget, but the amounts were reduced by veto. Also, the Innovation Center Network has not yet been organized in a formal sense.

In addition to the foregoing strategies, the MTC was responsible for a significant number of projects and actions in the past year. Several of our past and current MTC projects are continuing to provide economic benefits and hold even more promise for the future. We believe that the following initiatives are producing good and measurable value for the state and should be continued and enhanced.

Some of MTC's previous and on-going projects, accomplishments, responsibilities are:

### The UM Technology Park at Fort Leonard Wood

In 1999, the Missouri Technology Corporation advocated for a state investment in a new technology park to be located at Fort Leonard Wood, which is Missouri's largest and most significant military installation. A new technology park was funded and built through a partnership with the University of Missouri System. In response to our advocacy, the Governor and General Assembly approved a \$2.0 million appropriation to the MTC through the Department of Economic Development for use by the MTC in establishing and constructing the Technology Park. The MTC retained ownership of 45% of the Technology Park, with 55% owned by the Board of Curators of the University.

The University also committed \$2.0 million to the venture and took on the role of managing partner. Today, Building One at the University of Missouri Technology Park at Fort Leonard Wood is fully utilized and is producing a positive cash flow to the owners. Because of the proven demand for space to accommodate organizations engaged in strategic partnerships with the military, the Missouri Technology Corporation and the University of Missouri collaborated together to secure funding to construct a second building to meet current and future demand. That building was funded by a loan from the University of Missouri to the partnership between the MTC and UM. Construction began in the fall of 2004 and the facility opened for business in May 2005. The building is currently 100% occupied and plans are under way regarding how subsequent buildings can be financed and constructed. There is a substantial demand for the new space.

### Retention of Missouri military bases: Base Realignment and Closure

The MTC contracted with Missouri Enterprise Business Assistance Corporation to support the development of a strategy to proactively address the current Base Realignment and Closure Commission (BRAC 2005) initiative announced by Defense Secretary Donald Rumsfeld in January 2004. The object of this effort was to convince federal officials to not only to retain Fort Leonard Wood in Missouri, but also to advocate for reassigning more commands and major functions to the base, consistent with its training mission.

Public financing from the Missouri Development Finance Board and private sector contributions from the Fort Leonard Wood region that were transferred to MTC produced sufficient revenues to enable contracting with Burdeshaw & Associates, a Washington, D.C.-based consulting firm with expertise in military base representation. Burdeshaw worked actively on behalf of the MTC and its partners in the Ft. Wood region to convince key officials in the Department of Defense that Fort Leonard Wood should

be assigned new missions that will work in coordination with existing Joint Force capabilities at the Fort. In addition to Fort Wood, the MTC also worked with and provided state funding to a group of interested citizens prepare a retention strategy for Whiteman Air Force Base that was communicated to the Department of Defense and to key members of Congress.

The BRAC decisions announced by the Pentagon in May 2005 were a mixed bag for Fort Wood and Whiteman. Both bases escaped the base closure list, but neither facility is set to receive significant new missions that our BRAC effort targeted. Particularly in the case of Fort Leonard Wood, it had been hoped by the partners that either a new command or program offices would be assigned to the facility. However, on-going work on the part of local and state leaders to bring additional operations to Fort Wood that are associated with the redeployment of U.S. forces on a world-wide basis have been successful at Fort Leonard Wood. The facility will gain about 2,000 new personnel, both civilian and military, plus about 4,000 family members and support personnel.

#### Establishment and Evaluation of Missouri's Innovation Centers

The MTC is authorized by law to "contract with Missouri not-for-profit corporations for the operation of innovation centers within the state". The MTC's charge is to enable innovation centers to provide "assistance to individuals and business organizations during the early stages of the development of new technology-based business ventures." The MTC provides for the review of Missouri's centers, which are located in the cities of St. Louis, Rolla, Kansas City, Cape Girardeau and Columbia. The MTC requires that each innovation center annually submit a report of its activities to the MTC and the Department which is to include, but not be limited to "the success rate of the businesses graduating from the center, the progress and locations of businesses which have graduated from the center, the types of businesses which have graduated from the center, and the number of jobs created by the businesses involved in the center". The MTC is also responsible for approving the designation of any future innovation centers. In conjunction with the centers, the MTC has identified appropriate impact measures to evaluate the activities of each innovation center to the center's objectives.

The MTC worked in a partnership with DED and the innovation centers to publish a new set of performance criteria for the existing centers and to establish a method of evaluation for new center applications. During the course of 2005, the MTC voted to establish new Innovation Centers in Joplin and in Kansas City, and provided funding for Innovation Center feasibility studies in Kirksville, Joplin, and Kansas City.

### Founding of the Missouri Mathematics Academy

The Missouri Mathematics Academy, a state-wide professional development initiative to deepen students' understanding of mathematics through a community of teachers as learners, was formed in 2001 through a partnership consisting of the MTC, the Department of Economic Development, the Department of Higher Education, the Department of Elementary and Secondary Education (DESE) and the United States Army. DESE has assumed the role of coordinator of the Academy and is coordinating funding from both public and private sources.

Through the Mathematics Academy, participating middle school math teachers are striving to increase their content and pedagogical knowledge of mathematics through a two-year commitment to a summer academy and professional development program. Through this "community of learners", the participant teachers deepen their understanding of mathematics, so that they can, in turn, deepen their students' understanding.

During each summer since 2001, participants have received intensive work in mathematics content and how to develop ideal lessons to support this content. This approach is a model of effective professional development – content-focused, real life applications to the content, understanding assessment, mentors in the classroom, and regroups throughout the year. Classes are held at Fort Leonard Wood and at the University of Missouri-Columbia. The Academy has trained several dozen educators to be master teachers/consultants to provide statewide instruction. During the most recent session, about 75 teachers attended from 26 schools. Participating school principals attend the Academy for three days and must play a major role in the work at their particular school.

### **Published the Missouri Technology Plan**

In 2001, the MTC prepared an initial technology plan that outlined technology priority areas for the state and convened six roundtables across the state to develop recommendations for actions that would move Missouri forward. The report was a compilation of recommendations made by influential and knowledgeable representatives from the fields of the life sciences, advanced manufacturing and information technology.

The report observed, "technology is the engine driving the new economy and the wealth it creates. Missouri government must support programs that provide the technology infrastructure needed for Missouri companies to grow. This includes allocation of general revenue funds, support of federal R&D, and dedicated state technology organizations." The report also concluded, "companies with highly trained workers will be the successful companies in the twenty-first century. To ensure the necessary supply of these workers, Missouri must continue to emphasize the improvement of math and science skills in our education system, along with increased access to continuing technology training for working adults."

Even though the report was prepared more than three years ago, most of the recommendations that have not yet been accomplished are still valid. The MTC still intends to update the Technology Plan as a part of its efforts in the future, depending on whether funding is available to pay for the effort.

3.

### Compliance with the DED Contract:

As a part of the 2005 general agreement between DED and MTC, it is necessary for the MTC to do a review of the agreement to document how MTC complied with the terms and conditions detailed in the agreement, which ended on June 30, 2005.

In addition to agreeing to using DED funds to accomplish the strategic goals of the MTC, and to spend the money in a manner prescribed by state regulations, the MTC agreed to a set of performance requirements. Our responses follow:

"MTC Activities Covered by the Agreement:

1. MTC will make recommendations to DED for the allocation of \$252,460 of funds appropriated for "Other Innovation Centers" for FY05. This recommendation must be received, in writing, with supporting rationale no later than November 1, 2004.

Status: Accomplished on November 1, 2004

2. MTC will suggest performance measures to evaluate the activities of existing Innovation Centers for inclusion in DED's FY06 appropriations requests for Innovation Centers. This recommendation must be received, in writing, with supporting rationale, no later than June 30, 2005.

Status: Accomplished October 20, 2004, with follow-ups in January 2005

3. MTC will suggest performance measures to evaluate the activities of Missouri Manufacturing Extension Partnership ("MEP") for inclusion in DED's FY06 MEP appropriations request. This recommendation must be received, in writing, with supporting rationale, no later than June 30, 2005.

Status: Report was submitted to DED in January 2005

4. University of Missouri Technology Park at Fort Leonard Wood -- Pursuant to previous agreements between DED and MTC, DED provided funding for MTC to enter into an agreement with the University of Missouri System for the development of the Fort Leonard Wood Technology Park. Pursuant to those agreements, MTC holds a 45% interest in the Technology Park. MTC also assumed responsibility for providing assistance in management and oversight of the State of Missouri's approximately \$1.5 million investment and partnership in the Fort Leonard Wood Technology Park, via contracts between DED and MTC and MTC and the University of Missouri System. This includes business opportunities and the development of a second building at the technology park, which was placed in service during May 2005. MTC will coordinate DED activities with regard to the Fort Wood Technology Park.

Status: On-going activity through the current date. Building #2 in operation at the park and 100% occupied. New funding for planning and construction of a subsequent building is being pursued.

5. MTC contracted with Missouri Enterprise to support the development of a strategy to proactively address the 2005 round of Base Realignment and Closure (BRAC). Financing for the initiative was through the Missouri Development Finance Board, with matching funds from local business leaders. The project involved contracting with Burdeshaw & Associates to work with the Missouri National Guard and Fort Leonard Wood. MTC also provided input into the strategy document that was presented to the Pentagon

Status: MTC fulfilled its role in cooperation with MDFB, Burdeshaw Associates, Missouri Enterprise, and other organizations. BRAC decisions were announced in

May 2005. No significantly adverse BRAC decisions regarding Fort Wood and Whiteman were made.

6. Missouri Mathematics Academy -- MTC may provide monetary and non-monetary support and assistance to the Department of Elementary and Secondary Education for continued operation of the Missouri Math Academy. MTC shall assist with fund raising but, no funds provided under this contract shall be used for providing financial support for the Missouri Mathematics Academy.

Status: MTC remained in contact with and supported DESE, but provided no funds

7. As set forth in section 348.261 RSMo, work with Missouri's universities to promote and advance commercialization and technology transfer from the universities to the private sector; establish programs designed to educate policymakers and the general public regarding the value of research and technology development, transfer, and commercialization; identify technology-related problems and opportunities related to the economy of Missouri and formulate proposals to overcome those problems or realize those opportunities; identify specific areas where university or private research will contribute to the improvement of productivity of Missouri manufacturers; assist in establishing cooperative associations of universities and business for the purpose of coordinating research and development programs; provide financial assistance through contracts, grants, or loans to programs of scientific and technological research and development; assist in financing the establishment and continued development of technology intensive businesses; determine how universities can increase income derived from the sale or licensure of products or processes developed as a result of university sponsored research programs; make direct seed capital or venture capital investments in investment funds or businesses that demonstrate promise of growth and job creation.

Status: This is an on-going effort through RAM and directly with university and non-university partners.

8. As authorized in subsection 1 of section 248.253 and from funds provided in line 38 of section 7.020 of House Bill 1007, 2<sup>nd</sup> Regular Session of the 92<sup>nd</sup> General Assembly, provide monetary and non-monetary support for the operations of the Research Alliance of Missouri (hereinafter referred to as "RAM"). MTC will continue to provide administrative, organizational and financial support to the RAM. MTC will attach RAM's Strategic Plan for FY 2005 to MTC's Strategic Plan and will describe the accomplishments of RAM in its Annual and Final Annual Reports.

Status: MTC provided a negotiated amount of funding and support to RAM for the year that ended on June 30, 2005. MTC's executive director and part-time clerical staff supported RAM's operations during the year.

9. MTC shall cooperate and coordinate with DED in its activities with any entity that also receives DED funding, such as Innovation Centers and Missouri Manufacturing Extension Partnership.

Status: MTC remained in close contact with Stacey Hirst and other officers from DED during the course of regarding these and other issues of importance.

- 10. MTC may not use the Agreement Funds directly or indirectly, to fund the following activities:
  - Venture Capital Roundtable administration
  - Seed Capital Investment Board administration
  - International Marketing initiatives that are comparable to those already provided by DED

Status: MTC did not use agreement funds for supporting these activities

### Conclusion

This report details the work, history, financing and accomplishments of the MTC during the past year and, with the inclusion of our Strategic Plan, details the future work of our organization during the remainder of the year and beyond. We are pleased about the accomplishments of the past year, but since the MTC just adopted its first plan of action in 2005, we believe the year ahead could be an even more exciting, challenging and productive period.

More importantly, we believe we are about the business of describing what can be accomplished over the next few years in technology-based development if there is a broad commitment by our state's leaders. We believe the issues we have raised in the past year are of fundamental importance to the future of our state. If our state is to have a chance to sustain and improve the quality of life for our fellow citizens in decades to come, we must be willing to work together to better cultivate the benefits that can come from the creation of knowledge.

Since the initial meeting of the MTC's Board on November 16, 1994 and its subsequent incorporation with the Secretary of State's Office on January 10, 1995, the Missouri Technology Corporation has dedicated its work to improving Missouri's economic opportunities through better investments in new ideas. We believe we accomplished some valuable services to the state in the past year, and the year ahead provides tremendous opportunities to build on those past successes and to achieve significant new progress.

The members of the Board and its executive director are justifiably proud, we believe, in our accomplishments over the past year. It is the fervent hope of the Board that the MTC and RAM will be called on and supported by DED and the Blunt administration in the next year to play an even more aggressive and critical role in efforts to improve the level of innovation and achievement in our state.

#### **APPENDIX A:**

### MTC'S LEGISLATIVE MANDATE

The Missouri Technology Corporation (MTC) is a private not-for-profit corporation established pursuant to Sections 348.251 to 348.266 of the RSMo and subject to the provisions of Chapter 355, RSMo. The purposes of the MTC are to help strengthen the economy of the state through the development of science and technology, to promote the modernization of Missouri businesses by supporting the transfer of science, technology and quality improvement by providing leadership in the establishment of methods of technology application, technology commercialization and technology development.

In accomplishing its goals, the MTC has broad powers that allow for a wide range of activities that enhance research and development, technology transfer and commercialization. For example:

- The MTC is able to assist in establishing cooperative associations of universities and private enterprises in Missouri for the purpose of coordinating research and development programs.
- The MTC can establish a statewide business modernization network to assist Missouri businesses in identifying ways to enhance productivity and market competitiveness.
- The MTC can specific areas where scientific research and technological investigation will contribute to the improvement of productivity of Missouri manufacturers and identifies scientific and technological problems and opportunities related to the economy of Missouri and formulate proposals to overcome those problems.
- It can also make direct seed capital or venture capital investments in Missouri business investment funds or businesses that demonstrate the promise of growth or job creation.

### **APPENDIX B:**

### MTC'S MEETING SCHEDULE

During 2005, the Board of the MTC held numerous meetings in fulfilling its obligations and the expectations of DED and other policymaker partners. MTC is required by its bylaws to meet at least quarterly during the calendar year, but the Chair and officers of the organization determined that more frequent meetings were needed in order to conclude a strategic plan, to hire a staff, establish an office, and to accomplish a number of additional tasks.

The meeting schedule was as follows:

December 17, 2004 Jefferson CityMarch 25, 2005 Jefferson City

June 24, 2005Fort Leonard Wood

August 26, 2005 SpringfieldOctober 28, 2005 Jefferson City

### Appendix C:

# New Technology Directions: Missouri Technology Corporation Strategic Plan

In 2004, the MTC gained new capacity to fulfill its unique role of being an advocate for more investments in cutting edge research, the development of new products and processes based on new ideas, and increasing the commercial benefits that come from new discoveries. The MTC also concluded that it should develop a sound plan that would guide it and its partners in achieving new, measurable progress in implementing desired policy changes. The following are our thoughts about what we believe our state can achieve in the future and our role in making that vision come true. We have also identified some significant hurdles for our state in improving the prospects for economic growth through technology achievements. Finally, we have adopted some desirable but aggressive goals we believe we can accomplish in the next few years.

This *Strategic Plan* describes for Missouri's citizens and leaders some of the challenges we face as a state, and what we intend to do about those challenges.

### Vision

Missouri will be recognized as the home of world-class research institutions and companies whose technologies and products bring about abundant jobs, a vibrant economy and healthy citizens.

### Mission

The mission of the Missouri Technology Corporation is to promote, advocate and provide leadership in support of technology access for Missouri companies and citizens so they can enhance research, development, and technology commercialization, which will create economic growth, sustainable jobs and wealth.

### Strategic Challenges

- Significantly increase research and development spending in Missouri
- Develop sustainable funding sources for technology programs
- Achieve a greater geographic balance in technology efforts
- ◆ Improve technology transfer to industry
- Raise awareness of the impact and import of technology-driven economic development
- Better connect people to the state's existing technology resources

◆ Build a stronger reputation for the MTC and its mission with elected officials and policy makers

♦ Build on strategic partnerships

### Strategic Plan

With the assistance of its key partners, the Missouri Technology Corporation Board adopted goals it wants to achieve in the coming year and beyond. The MTC also adopted a set of strategies to guide its actions. During the coming year, the MTC intends to build additional partnerships, leverage new sources of funding and accomplish measurable results that were not possible in the past. Our goals and strategies for the next 1-3 years are the following:

Goal	Strategy	Priority
Increase the level of knowledge among policy makers and citizens about the role of technology and innovation in promoting	Construct and continually update a "Show-Me Innovation Index" to measure Missouri's annual achievements in research, technology development, educational achievement and innovation	Immediate
economic growth	Publish a "Missouri Technology Plan" that can serve as a guide for policymakers in the formation of new technology policies that can stimulate Missouri's key industries	Immediate
	Inform key members of the General Assembly, legislative staff and the Governor's administration about the MTC's goals, methods and achievements	Immediate
	Designate a state science and technology advisor to work with the Governor and General Assembly	Short-term
	Support implementation of existing recommendations that will help strengthen Missouri's technology-intensive industry clusters	Short-term
Develop additional sources of sustainable funding for technology initiatives	In partnership with the Research Alliance of Missouri (RAM), enable and broker collaborative research agreements and projects that better connect research institutions and businesses and increase the likelihood for external funding	Immediate
	Assist in building new, technology-based economic development partnerships around Missouri's key industry clusters	Short-term
	Seek direct or indirect funding from the federal government, foundations, and private businesses that will allow the MTC to play a sustained role in technology development, transfer and commercialization	Short-term

Dovolon and maintain agaily	In partnership with DAM greate a web accessible	Short-term
Develop and maintain easily accessible information about Missouri's technology assets, including researchers, research projects, intellectual property and funding sources	In partnership with RAM, create a web-accessible research database that includes researchers, research projects, and intellectual property in fields of discovery related to Missouri's targeted industries	
	Partner with the University of Missouri and the State SBIR/STTR Assistance Centers to complete and deploy the "Innovation Information Infrastructure" system, which will provide a way for universities and businesses to communicate more easily and effectively on technology issues	Short-term
Increase the amount of company creation and growth based on the transfer of technologies	Develop new opportunities to expand the UM Tech Park at Fort Leonard Wood and build on partnerships among businesses, universities and local/state government that produce more opportunities for research, technology transfer, and company creation in the region	Immediate
	Publish and help implement a Missouri Technology Commercialization Plan that includes model Intellectual Property and Technology Licensing policies that can be utilized by Missouri's universities and entrepreneurs	Short-term
	Provide advocacy, support and funding for a "Phase Zero" grant program that assists entrepreneurs who are trying to get SBIR or STTR proposals submitted to the federal government	
	Develop a more robust set of criteria for evaluating new innovation center proposals and for measuring the success of existing Innovation Centers	Immediate
	Pursue adequate and coordinated funding for the Innovation Center network	Short-term

Immediate=As soon as possible Short-term=One to three years

### Activities and Accomplishments Report: MTC's Action Plan

So that its strategic plan will not become a static document, the MTC also adopted an "Action Plan". The Plan details the activities and accomplishments and charts progress towards achieving the MTC's strategic plan. The Action Plan is updated frequently and is intended as a management tool to keep track of the efforts of the organization. The plan is structured to detail work on the MTC's four goals, with associated outcome measures, strategies and actions. The plan is as follows:

# GOAL # 1: Increase the level of knowledge among state policy makers and citizens about the role of technology and innovation in promoting economic growth

OUTCOME MEASURE: Passage of legislative and budgetary priorities during the 2005 and subsequent legislative sessions that will increase research, technology development and commercialization in Missouri

Stratogica	Actions	Porcens or	Ctort	Current	Milostopos	Donortina
<u>Strategies</u>	<u>Actions</u>	Persons or Organizations Responsible	Start Date	<u>Current</u> <u>Status</u>	Milestones and Completion Date	Reporting Intervals
1. Construct and continually update a "Missouri Show-me Innovation Index" to measure Missouri's annual achievements in research, technology development, educational achievement and innovation	Send RFP to potential bidders	Joe Driskill; John Houghton	2/22/05	Bids received, contract awarded and Index received on June 24, 2005. Board and DED trying to determine how it will be released.	Contract awarded 3/14/05; anticipated interim results 5/1/05; completion expected 6/08/05; presentation to MTC Board at 6/24 meeting	MTC meetings
2. Publish a new "Missouri Technology Plan" " that can serve as a guide for policymakers in the formation of new technology policies that can stimulate Missouri's key industries.	Send RFP to potential bidders; secure funding for plan project	Joe Driskill; John Houghton	12/17/04	Bid document completed; Board authorization received; focus group session held in St. Louis	Anticipate publishing RFP at some point in 2006, depending on available funding	MTC meetings
3. Inform key members of the General Assembly, legislative staff and the Governor's administration about MTC's goals, methods, and achievements	meetings with MTC Board meetings held. education members, MTC Board contacts		2/28/05; educational contacts are ongoing.	MTC meetings		
4. Designate a state "Science and Technology Advisor" to work with the Governor and General Assembly	Letter of request written to DED and to the Governor		1/10/05	No answer as of October 15, 2005		MTC meetings

### GOAL #2: Develop additional sources for technology initiatives

OUTCOME MEASURES: \* Increase the success of Missouri universities Missouri's in attracting nonstate funding to strengthen our technology base

\*Increase the ability of the MTC to fund technology initiatives within our state \*Decrease the percentage of MTC's total budget provided by the General Assembly

<u>Strategies</u>	Actions	Persons or Organizations Responsible	Start Date	<u>Current</u> <u>Status</u>	Milestones and Completion Date	Reporting Intervals			
1. In partnership with the Research Alliance of Missouri (RAM), enable and broker collaborative research agreements and projects that better connect research institutions and businesses and increase the likelihood for external funding	RAM adopted strategic plan and aggressively pursuing "template agreements" that will allow more grant funding for collaborative projects	Joe Driskill; Dr. Tom Sharpe	1/11/05	A template research and licensing agreement accepted by RAM institutions; Completed	Template completed. Public release sent on March 14, 2005; news media covered the story	Monthly at RAM meetings; MTC meetings			
2. Assist in building new, technology-based economic development partnerships around Missouri's key industry clusters	Not started			Uncertainty over MTC's future is a hindering factor					
3. Seek direct or indirect funding from the federal government, foundations and private businesses that will allow the MTC to play a sustained role in technology development, transfer and commercialization	Formation of a non-state fundraising plan for 2005	Joe Driskill, MTC Board	April 1, 2005	Discussed at 3/25/05 MTC meeting; need to plan with DED officials	Interim plan adoption at the June 24, 2005 MTC meeting, as a part of the FY 2006 MTC budget. A request to help fill funding gap for 2006 sent to DED 8/05	Monthly			

GOAL # 3: Develop and maintain easily accessible information about Missouri's technology assets, including researchers, research projects, intellectual property and funding sources

OUTCOME MEASURE: \*Increase the number of new, technology-based companies formed in Missouri
\*Increase the number of economic development projects commenced and completed
that can be attributed to the use of technology-related services and information

Strategies	Actions	Persons or Organizations Responsible	Start Date	<u>Current</u> <u>Status</u>	Milestones and Completion Date	Reporting Intervals		
1. Create a web- accessible research database that includes researchers, research projects and intellectual property in fields of discovery related to Missouri's targeted industries	Cooperation with RAM institutions to update "research matrix" and establish a web- accessible database	Joe Driskill and RAM	10/15/04	RAM website with significant database capabilities is complete; Research Matrix being updated by individual institutions; Completed. Needs improvement	RAM research matrix or database fully functional May 1, 2005	Quarterly		
2. Partner with the University of Missouri and the State SBIR/STTR Assistance Centers to complete and deploy the I <sup>3</sup> (Innovation Information Infrastructure) system, which will provide a way for universities and businesses to communicate more easily and effectively on technology issues	I <sup>3</sup> is functioning in its Beta form. MTC is needed to assist in structuring a cooperative with RAM universities and others to help populate the database.	Dr. Mike Nichols; Joe Driskill	10/1/04	Project is under way but no cooperative yet established. Need to have password to access the I <sup>3</sup> system.	On-going	Quarterly		

GOAL # 4: Increase the amount of company creation and growth based on the transfer of technologies

OUTCOME MEASURE: \*Increase the number of technology transfer agreements in Missouri

\*Increase the volume of venture capital investments in Missouri

\*Positive change in Missouri's Show-Me Innovation Index

<u>Strategies</u>	<u>Actions</u>	Persons or Organizations Responsible	Start Date	<u>Current</u> <u>Status</u>	Milestones and Completion Date	Reporting Intervals			
1. Develop new opportunities to expand the UM Tech Park at FLW and build on partnerships among businesses, universities and local/state government that produce more opportunities for research, technology transfer, and company creation in the region	Cooperate with UM and others to fund and construct a 2 <sup>nd</sup> building at the UM Tech Park	UM System, Missouri Enterprise, Leonard Wood Institute, Joe Driskill	August 20, 2004	Building #2 completed and there is 100% occupancy. Consideration of additional buildings by UMS or other parties. MTC to considered strategies at 6/24 and 8/26 board meetings.	Funding agreement signed August 20, 2004. Building completed and ribbon cutting held, 5/19/05. 100% occupied by summer 2005.	Quarterly			
2. Devise a Missouri Technology Commercialization plan that includes model intellectual property and technology licensing policies that can be utilized by Missouri's universities and entrepreneurs	Conversations with UM, SLU and Washington U representatives regarding "model" commercialization procedures	Joe Driskill, Steve Lehmkuhle, Tom Sharpe	Not Started	RAM members are spearheading the effort to determine what kind of model legislation or procedure is needed. Dr. Tom Sharpe to present to MTC on 6/24	Commencement of project targeted for FY 2006	Quarterly			
3. Provide advocacy, support and funding for a "Phase Zero" grant program that assists entrepreneurs who are trying to get SBIR or STTR proposals submitted to the federal government	Not started	Joe Driskill, Dr. Mike Nichols		Not started					

4. Develop a more robust set of criteria for evaluating new innovation center proposals and for measuring the success of existing innovation centers	IC Committee has met 3 times to develop criteria for evaluating new IC applications, established standard reporting system for existing centers; considered designation of new center(s) and funding recommendations	Center Committee	8/30/04; committee met again on 10/06/05 and 3/11/05	Completed criteria; DED has approved of the criteria and draft reporting forms have been drawn by DED and distributed. Approval of MTC at 6/24/05 meeting	June 2005	Follow-up report at future board meeting in 2006
5. Ensure adequate and coordinated funding for the Innovation Center network	Conversations with DED regarding FY 2005 and FY 2006 funding and building IC Network concept	Innovation Center Committee, Executive Committee	December 17, 2004		Planning for next budget year, July 2006- June 2007	MTC meetings

#### APPENDIX D:

### Missouri Technology Corporation Board of Directors and Staff:

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- \* Colonel Abney was elected by the members to serve in an ex-offico capacity, representing Fort Leonard Wood
- 2 Vacancies for public members exist
- 1 Vacancy for member from the House of Representatives exists

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### APPENDIX E:

## **Unaudited Financial Summary**

## **Balance Sheet**

# As of October 17, 2005 MTC and RAM Funds

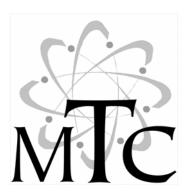
		Total
ASSETS		
Current Assets		
Bank Accounts		
Central Bank Checking		192,917.84
Total Bank Accounts	\$	192,917.84
Total Current Assets	\$	192,917.84
Fixed Assets		
Office Equipment		13,223.58
Accumulated Depreciation		-2,084.30
Total Office Equipment	<b>\$</b>	11,139.28
Total Fixed Assets	\$	11,139.28
Other Assets		
Investment in UM/FLW Technology		1,493,622.00
Rent Deposit		590.00
Total Other Assets	<b>\$</b>	1,494,212.00
TOTAL ASSETS	\$	1,698,269.12
LIABILITIES AND EQUITY		
Liabilities		
Current Liabilities		
Accounts Payable		
Accounts Payable		0.00
Total Accounts Payable	\$	0.00
Other Current Liabilities		
Central Bank Note		0.00
Payroll Liabilities		5,079.30
<b>Total Other Current Liabilities</b>	\$	5,079.30
Total Current Liabilities	\$	5,079.30
Total Liabilities	\$	5,079.30
Equity		
Opening Bal Equity		1,478,242.34
Retained Earnings		286,090.18
Net Income		-71,142.70
Total Equity	\$	1,693,189.82
TOTAL LIABILITIES AND EQUITY	<u> </u>	1,698,269.12

# **Income and Expenses**

# January 1, 2005-October 21, 2005 All Funds

_	Total
Income	
Contributions Income	93,555.79
Unrestricted	60,625.00
<b>Total Contributions Income</b>	\$ 154,180.79
Discounts given	67.48
Miscellaneous Income	689.19
Reimbursed Expenses	4,480.50
Total Income	\$ 159,417.96
Expenses	
Conference - Expense	4,855.09
Depreciation Expense	1,316.40
Dues and Subscriptions	647.64
Equipment Rental	65.57
Insurance	100.00
Liability Insurance	374.00
Total Insurance	\$ 474.00
Interest Expense	
Finance Charge	16.00
Total Interest Expense	\$ 16.00
Licenses and Permits	62.06
Meetings	2,686.44
Miscellaneous	92.16
Office Supplies	1,130.27
Payroll Expenses	88,702.50
Employee Benefits - 401k	8,925.00
Total Payroll Expenses	\$ 97,627.50
Payroll Tax	6,785.81
Postage and Delivery	1,842.64
Printing and Reproduction	1,509.27
Professional Fees	
Accounting	12,210.38
Consulting	13,357.09
Legal Fees	2,912.50
Total Professional Fees	\$ 28,479.97
Program Expense	55,078.80
Rent	5,900.00
Supplies	
Office	154.20
Total Supplies	\$ 154.20
Telephone	4,073.27
Travel & Entertainment	0.75
Meals	94.73
Travel	1,883.83
Total Travel & Entertainment	\$ 1,979.31
Utilities	434.47
Gas and Electric	280.91

Total Utilities	\$	715.38
Total Expenses	\$	215,491.78
Net Operating Income	\$	-56,073.82
Other Income		
Interest Income		551.72
Total Other Income	\$	551.72
Other Expenses		
Other Expenses		39.58
Total Other Expenses	<b>\$</b>	39.58
Net Other Income	\$	512.14
Net Income	\$	-55,561.68
	·	-



# Missouri Technology Corporation 119 East Atchison Street Jefferson City, Missouri 65101

Exhibit 1 "Performance Statistics - SFY 2005"

Incubators	1														
	Black Economic Union (BEU)	Center for Emerging Technologies (CET)	Joseph Newman Business and Technology Innovation Center (JNBTIC)	Life Sciences Business Incubator Center (LSBIC)	Missouri Innovation Center (MIC)	Missouri IncuTech Foundation (MITF)	Nidus Center for Scientific Enterprise (NIDUS)	Ozark Foothills Development Association (OZARK)	Small Business Synergy Center (SBSC)	Southeast Missouri Innovation Center (SMIC)	St. Louis Enterprise Center (StLEC)	Technology Entrepreneur Center (TEC)	Thomas Hill Enterprise Center (THEC)	Averages	TOTAL
Data Description															
Year Certied	1997	1998	2004	2004	1995	1991	2003	1990	1992	2005	1990	2003	1997		
Occupancy Rate		91%	Under Constr.	Under Constr.		80%	82%	100%	98%	Under Constr.	0%	70%		74%	
Focus		Bio-Med	Mixed	R&D		Mfg, IT, Life Sci.	Plant & Life Sci.	Mfa	Mixed	Mixed	Mixed	IT, Comm.			
# Tenants		9	1			6	9	5	42		0	5			77
# Tenants/Incubator Jobs		185	14			10	70	22	216		0	17			534
\$ Tenants/Incubator Payroll		\$ 27,895,602	\$ 1,100,000			\$ 620,000	\$ 4,500,000	\$ 771,400	N/A		\$ -	\$ 554,000			\$ 35,441,002
\$ Tenants/Incubator Spending		\$ 133,735,479	N/A			\$ 2,362,081	\$ 12,000,000	\$ 2,155,934	N/A		\$ -	\$ 1,700,000			\$151,953,494
Tenants Ave. Length, yrs.		5.07	0.5			1.55	2.19	2.35	1.83		0	0.93		2.06	
# Failed		2	0			2	3	0	36		0	0			43
Failed Ave.Length, yrs.		2.13	0			2.42	2.5	0	1.21		0	0		2.07	
# MO Grads		4	1			5	2	0	92		0	0			104
# MO Grad Jobs		N/A	17			20	15	N/A	480		0	0			532
# MO Grads still in Business		4	1			5	2	0	80		0	0			92
MO Grads Ave. Length, yrs.		2.04	0.5			2.24	3.63	0	2.57		0	0		2.20	
\$ MO Grad Payroll		N/A	\$ 330,000			N/A	\$ 1,250,000	N/A	N/A		\$ -	\$ -			\$ 1,580,000
\$ MO Grad Spending		N/A	N/A			\$ 375,000	N/A	N/A	N/A		\$ -	\$ -			\$ 375,000
# Other Grads		4	1			2	2	0	4		0	0			13
Other Grads Ave. Length, yrs.		3.59	0.5			1.13	0.38	0	2.42		0	0		1.60	
Other Grads Ave. Length, yrs.	No report	3.59	0.5	Under Constr.	Not active	1.13	0.38	0	2.42	Under Constr.	0	ŭ	No report / Not		

active

N/A = data not available